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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/544,234

08/18/2006

Kozo Fujimoto

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27649

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EXAMINER

SINGAL, ANKUSH K

ART UNIT

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/544,234	Applicant(s) FUJIMOTO ET AL.	
	Examiner ANKUSH k. SINGAL	Art Unit 2823	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 January 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) 1-7 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 8-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 8 and 10-15 are rejected under 35 U.S.C. 102(b) as being anticipated by Kawaguchi et al.(US 4,568,592).

Re. claim 8, Kawaguchi et al. discloses a method of interconnecting terminals comprising: placing terminals(2a,2b) so as to oppose each other with an anisotropic electrically conductive resin composition including at least electrically conductive particles(4) and a resin component(3) which is not completely cured at the melting point of the electrically conductive particles disposed between the opposing terminals; heating the resin composition to a temperature which is higher than the melting point of the electrically conductive particles and at which the resin component is not completed cured, wherein in the heating, the electrically conductive particles collect between the opposing terminals by melting and agglomeration of the electrically conductive particles, and the opposing terminals are electrically interconnected; and curing the resin component(Figure 2,Column 5,lines 46-68) .

Re. claim 10 as discussed above in claim 8, Kawaguchi et al. discloses all the limitations as discussed above in claim 8 including completely filling the space between members on which the terminals are provided with the resin composition(Figure 2).

Re. claim 11, Kawaguchi et al. discloses a method of mounting a semiconductor device comprising: placing electrode pads(not shown) of a semiconductor chip opposite circuit electrodes provided on a circuit substrate so as to correspond to the electrode pads with an anisotropic electrically conductive resin composition including at least electrically conductive particles and a resin component which is not completely cured at the melting point of the electrically conductive particles disposed between the opposing electrode pads and circuit electrodes(Figure 1); heating the resin composition to a temperature which is higher than the melting point of the electrically conductive particles and at which the resin component is not completed cured, wherein in the heating, the electrically conductive particles collect between the opposing electrode pads and circuit electrodes by melting and agglomeration of the electrically conductive particles, and the opposing electrode pads and circuit electrodes are electrically interconnected; and curing the resin component (Figure 2,Column 5,lines 46-68) .

Re. claim 12 as discussed above in claim 11, Kawaguchi et al. discloses all the limitations as discussed above in claim 11 including completely filling the space between the semiconductor and the circuit substrate with the resin composition(Figure 1).

Re. claim 13 as discussed above in claim 12, Kawaguchi et al. discloses all the limitations as discussed above in claim 12 including during the heating, substantially all of the electrically conductive particles in the resin composition collect in regions between opposing electrode pads(not shown) and circuit electrodes(2a and 2b)(Figures 1 and 2).

Re. claim 14 as discussed above in claim 11, Kawaguchi et al. discloses all the limitations as discussed above in claim 11 including performing the heating with the opposing electrode pads and circuit electrodes separated from each other by a distance which is at least a multiple of the diameter of the particles(Figures 1 and 2).

Re. claim 15 as discussed above in claim 8, Kawaguchi et al. discloses all the limitations as discussed above in claim 8 including performing the heating with the terminals separated from each other by a distance which is at least a multiple of the diameter of the particles(Figure 1 and 2).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

1. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kawaguchi et al.(US 4,568,592) in view of Ouchi et al.(JP 2002-343829).

Re claim 9, Kawaguchi et al. teaches all the limitations except the resin having reducing properties which reduce at least one of the surface of the terminals and the surface of the electrically conductive particles.

However, Ouchi et al teaches the limitations not taught by Segawa et al.

A method of joining(same as interconnect) terminals also characterizes:

A resist component is a thermosetting resin (same as resin) having reducing properties which reduce at least one surface of the solder jointed side(same as terminal and the surface of the electrically conductive particles(Para [0036])).

It would have been obvious for one with ordinary skill in the art at the time the invention was made to modify Segawa et al. in view of Ouchi et al. to have the resin having reducing properties which reduce at least one of the surface of the terminals and the surface of the electrically conductive particles to make the resin stable chemically and has sufficient electric insulation (Para[0036] and [0031],line 2-3).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ANKUSH k. SINGAL whose telephone number is (571)270-1204. The examiner can normally be reached on monday-friday 7am-5pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, MATTHEW SMITH can be reached on (571)272-1907. The fax phone

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number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Michelle Estrada/
Primary Examiner, Art Unit 2823

Ankush K Singal